



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,727	12/16/2003	Yoon Hyung Roh	123056-05004426	3641

22429 7590 07/24/2008  
LOWE HAUPTMAN HAM & BERNER, LLP  
1700 DIAGONAL ROAD  
SUITE 300  
ALEXANDRIA, VA 22314

EXAMINER
----------

LENNOX, NATALIE

ART UNIT	PAPER NUMBER
----------	--------------

2626

MAIL DATE	DELIVERY MODE
-----------	---------------

07/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/735,727	<b>Applicant(s)</b> ROH ET AL.	
	<b>Examiner</b> NATALIE LENNOX	<b>Art Unit</b> 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This Office Action has been issued in response to the amendments filed on March 24, 2008. Claims 1-14 are pending, with claims 1 and 7 amended.

#### ***Response to Arguments***

1. Applicant's arguments filed March 24, 2008 have been fully considered but they are not persuasive.

Regarding applicant's arguments as presented on Remark's page 7, applicant cites that "a sentence pattern, according to Seo's teachings, is generated by partially parsing the predefine protectors," and that "according to embodiments of the claimed invention, the sentence pattern is generated by parsing an entire sentence and extracting sub-category of verb (Phrase nodes depending upon verb)." However, as provided in the claim the function of "a syntactic structure analyzing block for performing a parsing to the tagging result to output a parsing tree" is taught by Bernth (Col. 5, lines 49-55 and 61-66) with the purpose of providing a formal representation of the source segments (Col. 1, lines 45-46). Also, Seo's predefined protectors are linguistic parts of speech consisting of 'verb', 'aux', 'conj', and 'punct', which are detected and then the sentence is parsed between the protectors (Section 2. [Protector Detection] and Section 3), separating phrases belonging to sub-category of verb. Applicant's comment about "Phrase nodes depending upon verb" is not a limitation provided in the claim.

In response to applicant's argument that Parry et al. (US 6,077,085) "relates to language learning and not an automatic translation and therefore cannot be combined with the other applied references", the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Parry specifically teaches dividing a sentence into phrase parts if it exceeds a maximum length in order to obtain phrases that are individually meaningful. The fact that the references are applied to different fields does not exclude the use of the same idea to obtain a predictable result.

Regarding arguments as provided in Remarks page 8 with respect to claims 1 and 7, applicant argues that "Seo discloses in so far that a sentence pattern is generated by partially parsing predefined protectors" and that "according to Seo's disclosure, the protectors are determined as one protector in the tagging block and are not changed. Also, since the partial parsing is performed on the protector patterns between protectors, neighbor context information is not considered." Examiner clarifies that Seo's protectors are nothing more than verbs, which as provided in [Protector Detection] of Section 2 and Section 3, consist of verb and conjunctions such as 'and', 'that', and 'if'. Examiner fails to see what does applicant's comment of the protectors not changing after being determined as one protector has to do with the claimed limitations. Further, the argument of "neighbor context information not being considered" is another

limitation not provided in the claims or in applicant's disclosure and examiner fails to note the relation of the argument to the claimed subject matter.

In response to applicant's arguments against the references individually, as provided in Remarks page 8, lines 12-17, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Motivations for combining the references were provided in the Non-final Office Action of January 14, 2008 page 6.

Applicant's arguments, as provided in Remarks page 8, lines 8-22, with respect to claims 1 and 7, fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Applicant's arguments, as provided in Remarks page 9, lines 1-14, with respect to claim 6, fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references. The arguments provided here merely show examples and are not directed to the language of the claims or particular claim limitations.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Newly amended claims 1 and 7 contain subject matter which is not described or mention in applicant's disclosure. More specifically, paragraphs [0048], [0056], [0058], and [0065] describe the "construction pattern generating block" as generating a construction pattern specifically from the parsing tree and not from the "syntactic structure analyzing block," as the new amendment specifies. Also, paragraph [0058] clearly states that the "clause structure analysis" is being performed to the construction pattern, and not from the parsing tree, as the new amendment specifies. Finally, nowhere in the disclosure a step of "re-extracting sentences from a syntactic structure analyzing result" for establishing the "sentence construction pattern" is mentioned, as provided in claims 1 and 7.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, newly amended limitation "a sentence construction pattern is established by re-extracting sentences from the syntactic structure analyzing block" differs from the previous limitation in the same claim "a construction pattern generating block for extracting only a chunking result of phrases belonging to sub-category of verb in the parsing tree to generate a construction pattern that represents an entire sentence consisting of the parts of speech." It is unclear if the "sentence construction pattern" is the same as the construction pattern that is generated from the "construction pattern generating block" because it is claimed as "a sentence construction pattern" (emphasis added) and is generated differently. The "sentence construction pattern," as claimed, is established by re-extracting sentences from the "syntactic structure analyzing block," whereas the "construction pattern generating block" extracts "only a chunking result of phrases belonging to sub-category of verb in the parsing tree" (emphasis added), the parsing tree being the result of the "syntactic structure analyzing block" and not sentences. Claim 7 cites a similar limitation "wherein a sentence construction pattern is established by re-extracting sentences from a syntactic structure analyzing result and performing pattern matching," which also claims the re-extracting of sentences from the syntactic structure analyzing result, instead of "extracting only a chunking result of phrases belonging to sub-category of verb in the parsing tree" as established previously in step (c) of the same claim. Further, claim 1 adds the new limitation of "the clause

structure analyzing block extracts the clausal structure from the parsing tree generated through the syntactic structure analyzing block." This function is clearly different from how the "clause structure analyzing block," as described previously in the claim (lines 14-15), which analyzes a clausal structure of the construction pattern and not from the parsing tree outputted through the syntactic structure analyzing block. This is more clearly presented in Figure 1, where the clause structure analyzing block 106 works with the construction pattern generated from block 104. This is shown again on Figure 3.

### ***Claim Rejections - 35 USC § 103***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1, 2, 5-7, and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo et al. (CaptionEye/EK: English-to-Korean Caption Translation System using the Sentence Pattern, 2001) in view of Bernth et al. (US Patent 6,285,978), further in view of Roh et al. (Long Sentence Partitioning using Structure Analysis for Machine Translation, November 2001), and further in view of Suematsu (US Patent 5,671,425).

As per claim 1, Seo teaches a hybrid automatic translation apparatus employing a combination of a rule-based method and a translation pattern method, the hybrid automatic translation apparatus comprising:

a morpheme analyzing block for analyzing a morpheme of an inputted source sentence (Section 2 - [Fixed Pattern Recognition] does the morphological analysis);



Art Unit: 2626

a tagging block for determining parts of speech with respect to the result of the morphological analysis (Section 2 - [Fixed Pattern Recognition] does the morphological analysis and tagging, e.g. The (det) enormous amounts of (det) special (adj), etc.);

a construction pattern generating block for extracting only a chunking result of phrases belonging to sub-category of verb in the parsing tree to generate a construction pattern that represents an entire sentence consisting of the parts of speech (Section 2 - [Protector Detection] and [Partial Parsing between Protectors], wherein the Protector Detection module detects the main verbs in the sentence and the Partial Parsing does the chunking of the phrases in between the verbs or protectors, e.g. (det det adj noun noun => NP), etc. The result is the source sentence pattern (interpreted as the construction pattern) as shown under the [Partial Sentence Pattern Processor]:  
n/CVnVn/CnV);

a construction pattern translating block for translating the construction pattern by using a translation pattern (Section 2 - second paragraph under [Partial Parsing between Protectors]. "The resulting slot symbol is encoded to the key word in source sentence pattern (construction pattern) database."); and

a partial pattern translating block for recognizing a partial construction pattern with respect to each sub-clause with reference to the result of the clause structure analysis, and performing a translation using a partial translation pattern (Section 5 - Partial Sentence Pattern Processor).

However, Seo does not specifically mention the apparatus comprising:

a syntactic structure analyzing block for performing a parsing to the tagging result to output a parsing tree; and

a clause structure analyzing block for analyzing a clausal structure of the construction pattern if the translation pattern matching of the construction pattern fails.

Conversely, Bernth teaches a syntactic structure analyzing block for performing a parsing to the tagging result to output a parsing tree (Bernth's Col. 5, lines 49-55 and 61-66); and Roh teaches a clause structure analyzing block for analyzing a clausal structure of the construction pattern if the translation pattern matching of the construction pattern fails (Roh's Sections 4.2, 4.3, and 4.4, which are all part of the clausal structure analysis as determined in Section 6, 2nd paragraph, and Fig. 3, which shows the clausal structure analysis. Note that Roh does not specifically mention that the clausal structure analysis is done if the translation pattern matching to the construction Pattern fails, however it would have been obvious to one having ordinary skill in the art at the time of the invention that since Roh applied the clausal structure analysis to long sentences, it would be understood that Roh assumed that the translation of a construction pattern for a long sentence would often fail).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a syntactic structure analyzing block for performing a parsing to the tagging result to output a parsing tree as taught by Bernth for Seo's apparatus because Bernth provides a parse structure as a formal representation of one of the source segments (Bernth's Col. 1, lines 45-46).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a clause structure analyzing block for analyzing a clausal structure of the construction pattern if the translation pattern matching of the construction pattern fails as taught by Roh for Seo's apparatus because Roh provides long sentence partitioning using structure analysis to prevent the number of sentence pattern to build from increasing explosively and causing serious coverage problems while the length of a sentence increases (Roh's Section 3, last paragraph).

However, Seo, as modified above, does not specifically mention wherein a sentence construction pattern is established by re-extracting sentences from the syntactic structure analyzing block; and

the clause structure analyzing block extracts the clausal structure from the parsing tree generated through the syntactic structure analyzing block.

Conversely, Suematsu does teach

However, Seo, as modified above, does not specifically mention wherein a sentence construction pattern is established by re-extracting sentences from the syntactic structure analyzing block (Col. 2, lines 44-54, Col. 3, lines 30-42, and Fig. 1, wherein the lower block illustrates the "syntactic analysis" of which a "sentence pattern" is outputted.); and

the clause structure analyzing block extracts the clausal structure from the parsing tree generated through the syntactic structure analyzing block (Col. 10, lines 24-34).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the features of a sentence construction pattern is established by re-extracting sentences from the syntactic structure analyzing block, and the clause structure analyzing block extracts the clausal structure from the parsing tree generated through the syntactic structure analyzing block as taught by Suematsu for Seo's apparatus, as modified above, because Suematsu provides a system for recognizing sentence patterns which appear in sentences of a source language for use in natural language understanding systems and machine translation systems (Col. 1, lines 15-23).

As per claim 2, Seo, as modified above, teach the apparatus according to claim 1, wherein the morpheme analyzing block performs a preprocessing chunking when the morphological analysis of the inputted source sentence is performed (Seo's Section 4).

As per claim 5, Seo, as modified above, teach the apparatus according to claim 1, wherein the partial pattern translating block generates partial construction patterns with respect to sub-clause of a translation failure node with reference to the result of the clause structure analysis, performs a pattern translation to the partial construction pattern, replaces the translation result of the partial construction pattern with a sentence symbol "S", performs a pattern translation with respect to the construction pattern reduced by the pattern replacement, and generates a final translation result by performing a translation according to the construction components if the pattern

Art Unit: 2626

translation using the reduced construction pattern fails (Seo's Section 2 [Partial Parsing between Protectors], 2nd paragraph, and Sections 5 and 5.2., wherein the translation of the construction components is inherently done by the pattern translator as the sentence becomes simpler).

As per claim 6, Seo, as modified above, teach the apparatus according to claim 5, wherein the partial pattern translating block performs a top-down partial pattern translation, which performs a partial pattern translation to a sub-clause of the sub-clause, with reference to the result of the clause structure analysis, if the partial pattern translation of the sub-clause fails (Roh's Section 3, 3rd paragraph "the new machine translation methodology has characteristics of both shallow bottom-up parsing by protectors and top-down matching by structure-oriented sentence patterns" (as shown in Fig. 3)).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a partial pattern translating block that performs a top-down partial pattern translation, which performs a partial pattern translation to a sub-clause of the sub-clause, with reference to the result of the clause structure analysis, if the partial pattern translation of the sub-clause fails as taught by Roh for Seo's apparatus, as modified above, because as the translation goes from top to bottom the patterns are simplified which in turn gives more options for a match.

As per claim 7, Seo teaches a hybrid automatic translation method employing a combination of a rule-based method and a translation pattern method, the hybrid automatic translation method comprising the steps of:

(a) analyzing a morpheme of an inputted source sentence, performing a preprocessing chunking, and tagging the chunking result (Section 4 - Partial Parser and Section 2 - [Fixed Pattern Recognition]);

(c) generating construction patterns, which represent entire sentences consisting the parts of speech, by extracting only the chunking result of phrases belonging to sub- category of verb in the parsing tree (Section 2 - [Protector Detection] and [Partial Parsing between Protectors], wherein the Protector Detection module detects the main verbs in the sentence and the Partial Parsing does the chunking of the phrases in between the verbs or protectors, eg. (det det adj noun noun => NP), etc. The result is the source sentence pattern (interpreted as the construction pattern) as shown under the [Partial Sentence Pattern Processor]: n/CVnVn/CnV); and

(d) translating the construction pattern by using a translation pattern (Section 2 - second paragraph under [Partial Parsing between Protectors]. "The resulting slot symbol is encoded to the key word in source sentence pattern (construction pattern) database."); and

(f) generating a partial construction pattern with respect to sub-clause of translation failure node with reference to the result of the clause structure analysis, performing a pattern translation with respect to the partial construction pattern, and outputting a final translation result by combining the results of the pattern translation

(Section 5 - Partial Sentence Pattern Processor, and Section 5.2 - Simple Sentence Reduction and Whole Sentence Translation),

wherein a sentence construction pattern is established by re-extracting sentences from a syntactic structure analyzing result and performing pattern matching (this limitation is not being addressed because of the 112 1<sup>st</sup> new matter issue described above).

However, Seo does not specifically mention the method comprising:

- (b) parsing the tagging result to output a parsing tree; and
- (e) if the translation pattern matching to the construction pattern fails, analyzing a clause unit structure of the construction pattern.

Conversely, Bernth teaches parsing the tagging result to output a parsing tree (Bernth's Col. 5, lines 49-55 and 61-66); and Roh teaches analyzing a clause unit structure of the construction pattern if the translation pattern matching to the construction pattern fails (Roh's Sections 4.2, 4.3, and 4.4, which are all part of the clausal structure analysis as determined in Section 6, 2nd paragraph, and Fig. 3, which shows the clause structure analysis. Note that Roh does not specifically mention that the clausal structure analysis is done if the translation pattern matching to the construction pattern fails, however it would have been obvious to one having ordinary skill in the art at the time of the invention that since Roh applied the clausal structure analysis to long sentences, it would be understood that Roh assumed that the translation of a construction pattern for a long sentence would often fail).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of parsing the tagging result to output a parsing tree as taught by Bernth for Seo's apparatus because Bernth provides a parse structure as a formal representation of one of the source segments (Bernth's Col. 1, lines 45-46).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of analyzing a clause unit structure of the construction pattern if the translation pattern matching to the construction pattern fails as taught by Roh for Seo's apparatus because Roh provides long sentence partitioning using structure analysis to prevent the number of sentence pattern to build from increasing explosively and causing Serious coverage problems while the length of a sentence increases (Roh's Section 3, last paragraph).

However, Seo, as modified above, does not specifically mention wherein a sentence construction pattern is established by re-extracting sentences from a syntactic structure analyzing result and performing pattern matching.

Conversely, Suematso teaches a sentence construction pattern is established by re-extracting sentences from a syntactic structure analyzing result and performing pattern matching (Col. 2, lines 44-54, Col. 3, lines 30-42, and Fig. 1, wherein the lower block illustrates the "syntactic analysis" of which a "sentence pattern" is outputted.).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the features of a sentence construction pattern is



Art Unit: 2626

established by re-extracting sentences from the syntactic structure analyzing block, and the clause structure analyzing block extracts the clausal structure from the parsing tree generated through the syntactic structure analyzing block as taught by Suematsu for Seo's apparatus, as modified above, because Suematsu provides a system for recognizing sentence patterns which appear in sentences of a source language for use in natural language understanding systems and machine translation systems (Col. 1, lines 15-23).

As per Claim 9, Seo, as modified above, teach the method of claim 7, wherein the step (f) includes the steps of:

generating partial construction patterns with respect to sub-clause of a translation failure node with reference to the result of the clause structure analysis, and performing a pattern translation with respect to the partial construction pattern (Seo's Section 2 - [Partial Parsing between Protectors], 2nd paragraph, and [Partial Sentence Pattern Processor], also Sections 5, and 5.2);

replacing the translation result of the partial construction pattern with a sentence symbol "S", and performing a pattern translation to the construction pattern reduced by the pattern replacement (Seo's Section 5.2); and

if the pattern translation using the reduced construction pattern fails, generating a final translation result by performing a translation according to the construction components (Seo's Section 2 - [Partial Parsing between Protectors], 2nd paragraph,

also Section 5.2, wherein the translation of the construction components is inherently done by the pattern translator as the sentence becomes simpler).

As per claim 10, Seo, as modified above, teach the method of claim 9, wherein if the partial pattern translation of the sub-clause fails, the step (f) performs a top-down partial pattern translation, which performs a partial pattern translation with respect to a sub-clause of the sub-clause, with reference to the result of the clause structure analysis (Roh's Section 3, 3rd paragraph "the new machine translation methodology has characteristics of both shallow bottom-up parsing by protectors and top-down matching by structure-oriented sentence patterns" (as shown in Fig. 3).).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a partial pattern translating block that performs a top-down partial pattern translation, which performs a partial pattern translation to a sub-clause of the sub-clause, with reference to the result of the clause structure analysis, if the partial pattern translation of the sub-clause fails as taught by Roh for Seo's apparatus, as modified above, because as the translation goes from top to bottom the patterns are simplified which in turn gives more options for a match.

As per claims 11-14, Seo, as modified above, teach a computer- readable medium storing program instructions, the program instruction being disposed on a computer to perform the method claimed in claims 7-10, respectively (Seo's processing (e.g. Partial Sentence Pattern Processor) and use of databases (e.g. Target Sentence

Patter DB) suggests the presence of a computer readable medium storing the processing instructions.).

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seo et al. (CaptionEye/EK: English-to-Korean Caption Translation System using the Sentence Pattern, 2001) in view of Bernth et al. (US Patent 6,285,978), further in view of Roh et al. (Long Sentence Partitioning using Structure Analysis for Machine Translation, November 2001), and further in view of Suematso (US Patent 5,671,425), as applied to claim 1 above, and further in view of Horiguchi et al. (US Patent 6,330,530).

As per claim 3, Seo, as modified above, teach the apparatus according to claim 1, but do not specifically mention the tagging block outputting two optimum candidates as the tagging result to the syntactic structure analyzing block. However, Horiguchi teaches the tagging block outputting two optimum candidates as the tagging result to the syntactic structure analyzing block (Col. 6, lines 35-40, wherein the feature structure 2 shows the word "want" with its two optimum candidates, noun and verb, as outputted by the morphological analysis module 206, which identifies the root forms, grammatical categories, and other lexical features of the words (Col. 6, lines 16-19)).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a tagging block that outputs two optimum candidates as the tagging result to the syntactic structure analyzing block as taught by Horiguchi for Seo's apparatus, as modified above, because Horiguchi

provides a method for transforming input source language linguistic structures (SLS) to target language linguistic structures (TLS) (Col. 2, lines 39-41).

9. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo et al. (CaptionEye/EK: English-to-Korean Caption Translation System using the Sentence Pattern, 2001) in view of Bernth et al. (US Patent 6,285,978), further in view of Roh et al. (Long Sentence Partitioning using Structure Analysis for Machine Translation, November 2001), and further in view of Suematsu (US Patent 5,671,425), as applied to claims 1 and 7 above, and further in view of Parry et al. (US Patent 6,077,085).

As per claim 4, Seo, as modified above, teach the apparatus according to claim 1, wherein the syntactic structure analyzing block selects two or three division point candidates based on divisional point syntactic clue and a presence of main verb, performs a parsing to the divided sentences according to the candidates, selects an optimum division point by applying parsing weights to the parsing result of the divided sentence, and outputs the syntactic parsing result according to the selected division point (Bernth's parser 215 and source evaluation module 220 from Figs. 2 and 4, also Col. 6, lines 14-36. The parser evaluates the different complexity choices for producing the parse structure. These complexities include segmenting and tokenizing 405 and lexical choice 410, among others shown in Fig. 4. The segmenting and tokenizing 405 take into consideration the punctuation complexities (divisional point syntactic clue) (Col. 10, lines 1-21); and the lexical choice takes into consideration the lexical analyses

Art Unit: 2626

per word, different parts of speech, and ambiguous combinations of parts of speech (including verbs) (Col. 11, lines 16-30). The parse structure is evaluated according to the severity of the complexity or combination of severities (weighting factors), and a final parse structure is outputted).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a syntactic structure analyzing block that selects two or three division point candidates based on divisional point syntactic clue and a presence of main verb, performs a parsing to the divided sentences according to the candidates, selects an optimum division point by applying parsing weights to the parsing result of the divided sentence and outputs the syntactic parsing result according to the selected division point as taught by Bernth for Seo's apparatus, as modified above, because by evaluating multiple complexity choices for the parse structure, different severities of complexity are determined, which makes it easier to select the less complex in order to produce an optimum parse structure (Col. 4, lines 6-8).

However, Seo, as modified above, does not specifically mention a division point candidate based on a length of divided sentence, if the inputted sentence is a long sentence, a length of which is larger than a specific value.

Conversely, Parry et al. teach a division point candidate based on a length of divided sentence, if the inputted sentence is a long sentence, a length of which is larger than a specific value (Parry's Col. 23, lines 28-60, more specifically, lines 34-36).

It would have been obvious to one having ordinary skill in the art at the time the

Art Unit: 2626

invention was made to have used the feature of a division point candidate based on a length of divided sentence, if the inputted sentence is a long sentence, a length of which is larger than a specific value as taught by Parry et al. for Seo's apparatus, as modified above, because Parry et al. aims to divide the sentence into phrase parts which are individually meaningful (Col. 23, lines 28-29).

As per claim 8, Seo, as modified above, teach the method of claim 7, wherein the step (b) includes the steps of:

selecting two or three division point candidates based on divisional point syntactic clue and a presence of main verb (Bernth's parser 215 and source evaluation module 220 from Figs. 2 and 4, also Col. 6, lines 14- 36. The parser evaluates the different complexity choices for producing the parse structure. These complexities include segmenting and tokenizing 405 and lexical choice 410, among others shown in Fig. 4. The segmenting and tokenizing 405 take into consideration the punctuation complexities (divisional point syntactic clue) (Col. 10, lines 1-21 ); and the lexical choice takes into consideration the lexical analyses per word, different parts of speech, and ambiguous combinations of parts of speech (including verbs) (Col. 11, lines 16-30). performing a parsing to the divided sentences according to the candidates (Col. 6, lines 14-36, wherein the source evaluation module/process 220 generates a source indication of the complexity of choices in producing the source parse structure using any combination of complexity of choices which include segmenting and tokenizing 405, lexical choice 410, and sentence length 450); and

selecting an optimum division point by applying parsing weights to the parsing result of the divided sentence, and outputting the syntactic parsing result according to the selected division point (Col. 6, lines 26-36, wherein the source evaluation/process 220 writes a summary of the complexities encountered during the evaluation process and makes its determination according to the severity of the complexity (weighting factor) and outputs the source parse structure (Col. 6, lines 37-38).).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a syntactic structure analyzing block that selects two or three division point candidates based on divisional point syntactic clue and a presence of main verb, performs a parsing to the divided sentences according to the candidates, selects an optimum division point by applying parsing weights to the parsing result of the divided sentence, and outputs the syntactic parsing result according to the selected division point as taught by Bernth for Seo's apparatus, as modified above, because by evaluating multiple complexity choices for the parse structure, different severities of complexity are determined, which makes it easier to select the less complex in order to produce an optimum parse structure (Col. 4, lines 6-8).

However, Seo, as modified above, does not specifically mention a division point candidate based on a length of divided sentence, if the inputted sentence is a long sentence, a length of which is larger than a specific value.

Conversely, Parry et al. teach a division point candidate based on a length of divided sentence, if the inputted sentence is a long sentence, a length of which is larger

than a specific value (Parry's Col. 23, lines 28-60, more specifically, lines 34-36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the feature of a division point candidate based on a length of divided sentence, if the inputted sentence is a long sentence, a length of which is larger than a specific value as taught by Parry et al. for Seo's apparatus, as modified above, because Parry et al. aims to divide the sentence into phrase parts which are individually meaningful (Col. 23, lines 28-29).

### ***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATALIE LENNOX whose telephone number is



Art Unit: 2626

(571)270-1649. The examiner can normally be reached on Monday to Friday 9:30 am - 7 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NL 07/17/2008

/Richemond Dorvil/

Supervisory Patent Examiner, Art Unit 2626

Application/Control Number: 10/735,727  
Art Unit: 2626

Page 25